

CLAIMS

What is claimed is:

1. A vacuum cleaner comprising:
 - a foot assembly having a suction nozzle;
 - an upright handle assembly pivotally mounted to the foot assembly for manipulation of the foot assembly along a surface to be cleaned; and

5 a portable cleaning module detachably mounted to the handle assembly so that the vacuum cleaner can be operated as an upright vacuum cleaner when the portable cleaning module is mounted to the handle assembly or as a portable vacuum cleaner when the portable cleaning module is detached from the handle assembly, the portable cleaning module comprising:

10 a module housing;

a particle separator mounted to the module housing and having an inlet;

a suction conduit having a first end connected to the inlet of the cyclone separator and a second end removably coupled to the suction nozzle;

15 a motor and fan assembly supported in the module housing for creating a working air flow from the suction nozzle to the cyclone separator through the suction conduit; and

a portable power source coupled to the motor and fan assembly for supplying power to the motor and fan assembly when the portable cleaning

20 module is detached from the handle assembly for operation of the vacuum cleaner as a portable vacuum cleaner.
2. The vacuum cleaner according to claim 1 wherein the portable power source is adapted to supply power to the motor and fan assembly when the portable cleaning module is mounted to the handle assembly for operation of the vacuum cleaner as an upright vacuum cleaner.
3. The vacuum cleaner according to claim 1 wherein the portable power source comprises a battery pack.

4. The vacuum cleaner according to claim 3 wherein the battery pack comprises a rechargeable battery.

5. The vacuum cleaner according to claim 1 and further comprising a charging unit mounted in one of the foot assembly and the portable cleaning module and selectively coupled to the portable power source for charging the portable power source.

6. The vacuum cleaner according to claim 5 and further comprising a transformer in electrical communication with the charging unit and a stationary power source for converting alternating current from the stationary power source to direct current for the portable power source.

7. The vacuum cleaner and charging base assembly comprising a vacuum cleaner according to claim 1 and a charging base to which the foot assembly removably docks, the changing base comprising a charging unit that connects to the portable power source for charging the power source when the foot assembly is docked with the charging base.

8. The vacuum cleaner according to claim 1 and further comprising an agitator driven by an agitator motor, both mounted to the foot assembly, and the portable cleaning module comprises an interlock switch in communication with the agitator motor, wherein the interlock switch closes when the portable cleaning module 5 is mounted to the handle assembly to electrically couple the portable power source with the agitator motor.

9. The vacuum cleaner according to claim 8 and further comprising a user operated agitator switch between the portable power source and the interlock switch for controlling power to the agitator motor.

10. The vacuum cleaner according to claim 9 and further comprising a user operated main power switch between the portable power source and agitator switch.

11. The vacuum cleaner according to claim 9 and further comprising a lamp mounted to the foot assembly and electrically connected to the interlock switch

so that the portable power source supplies power to the lamp when the portable cleaning module is mounted to the handle assembly and the agitator switch is closed.

12. The vacuum cleaner according to claim 1 and further comprising a user operated main power switch between the portable power source and the motor and fan assembly for controlling power to the motor and fan assembly.

13. The vacuum cleaner according to claim 12 and further comprising a power cord coupled to the main power switch and having a plug that can be removably coupled to a stationary power source for providing power to the motor and fan assembly.

14. The vacuum cleaner according to claim 13 wherein the power cord is mounted to the portable cleaning module.

15. The vacuum cleaner according to claim 13 wherein the power cord is arranged in parallel relative to the portable power supply.

16. The vacuum cleaner according to claim 1 wherein the particle separator further comprises an outlet opening and the motor and fan assembly includes an inlet opening connected to the outlet opening of the particle separator for drawing the working air flow through the particle separator.

17. The vacuum cleaner according to claim 1 wherein the motor and fan assembly comprises an inlet opening connected to the first end of the suction conduit and an outlet opening connected to the inlet opening of the particle separator.

18. The vacuum cleaner according to claim 1 wherein the foot assembly further comprises an air conduit coupling and a working air conduit coupled to the suction nozzle at a first end and to the air conduit coupling at a second end, and wherein the portable cleaning module further comprises a hose fitting that removably receives the second end of the suction conduit and mates with the air conduit coupling when the portable cleaning module is mounted to the handle assembly to fluidly communicate the suction nozzle with the particle separator.

19. The vacuum cleaner of any of claims 1-18 wherein the portable cleaning module comprises a cyclone separator.

20. The vacuum cleaner according to claim 19 wherein the portable cleaning module further comprises a dirt cup removably mounted to the module housing to collect particles separated from the working air flow by the cyclone separator.

21. The vacuum cleaner according to claim 20 wherein the dirt cup is mounted below the cyclone separator.

22. The vacuum cleaner according to any of claims 1-18 wherein the cleaning module comprises a bag filter.